



RID IETF Draft Update

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5 August 2004

This work was sponsored by the Air Force under Air Force Contract Number F19628-00-C-0002.

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Report Documentation Page				Form Approved OMB No. 0704-0188	
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1. REPORT DATE 05 AUG 2004		2. REPORT TYPE		3. DATES COVERED 00-00-2004 to 00-00-2004	
4. TITLE AND SUBTITLE RID IETF Draft Update				5a. CONTRACT NUMBER	
				5b. GRANT NUMBER	
				5c. PROGRAM ELEMENT NUMBER	
6. AUTHOR(S)				5d. PROJECT NUMBER	
				5e. TASK NUMBER	
				5f. WORK UNIT NUMBER	
7. PERFORMING ORGANIZATION NAME(S) AND ADDRESS(ES) Massachusetts Institute of Technology, Lincoln Laboratory, 244 Wood Street, Lexington, MA, 02420-9108				8. PERFORMING ORGANIZATION REPORT NUMBER	
9. SPONSORING/MONITORING AGENCY NAME(S) AND ADDRESS(ES)				10. SPONSOR/MONITOR'S ACRONYM(S)	
				11. SPONSOR/MONITOR'S REPORT NUMBER(S)	
12. DISTRIBUTION/AVAILABILITY STATEMENT Approved for public release; distribution unlimited					
13. SUPPLEMENTARY NOTES					
14. ABSTRACT					
15. SUBJECT TERMS					
16. SECURITY CLASSIFICATION OF:			17. LIMITATION OF ABSTRACT Same as Report (SAR)	18. NUMBER OF PAGES 10	19a. NAME OF RESPONSIBLE PERSON
a. REPORT unclassified	b. ABSTRACT unclassified	c. THIS PAGE unclassified			



RID Updates

- **Purpose**
- **RID and INCH**
- **Messaging Format for RID**
- **Define Extensions to IODEF Model**
- **New Extension for Policy**
- **Communication Mechanism for RID Documents**
- **Security Considerations**



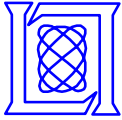
Real-time Inter-network Defense (RID)

- **Trace Security Incidents to the Source**
- **Stop or Mitigate the Effects of an Attack or Security Incident**
- **Facilitate Communications between Network Providers**
- **Integrate with existing and future network components**
 - **Systems to trace traffic across a network**
 - Intrusion Detection Systems
 - NetFlow, Hash Based IP Traceback, IP Marking, etc.
 - Network devices such as routers and firewalls
- **Provide secure means to communicate RID messages**
 - **Consortiums agree upon use and abuse guidelines**
 - **Consortiums provide a key exchange method**
 - Trusted PKI, certificate repository, cross certifications



RID and INCH

- **RID is used to communicate security incident handling information between CSIRTs or NPs**
- **RID carries much of the same data as an IODEF document**
 - RID requires a few additional data elements
- **Communication and proper transport of messages is in the RID specification**
- **RID is now reformatted to use the IODEF specification**
 - Packet based format to IODEF document
- **RID message types**
 - XML IODEF document with RID extensions
 - SOAP Wrapper
 - Message Type distinguished in SOAP wrapper and RIDPolicy



SOAP Wrapper Input

- **SOAP Wrapper for Messages**
- **One way communication, but the conversation is specified by the application**
 - RID messages require responses in the form of authorization status and source found messages
 - SOAP header carries information needed by RID systems during a relay request
 - SOAP body does not need to be parsed
- **Transport would be left for other specification**
- **SOAP would be a wrapper and another protocol would be used for transport**
 - Practical - SSH
 - Other options
 - HTTPS, BEEP, SNMP, etc.
- **Are there any SOAP experts that can review the document?**



RID Extensions to IODEF

- **AdditionalData Class from IODEF used to define Extensions**
 - **IPPacket Class**
Allows hex packets to be stored in the RID message in a format that will be expected by the recipient of a RID message
Multiple packets may be sent in a single message
 - **NPPath Class**
Purpose is to identify the path of the trace and to avoid loops
 - **TraceStatus Class**
Method for providing approval status from upstream peer after a trace request is made
 - **RIDPolicy**
Method to determine via RID messages if trace should be continued between NPs
Policy negotiations for RID messages
- **Reliability of the trace type requested**
 - Some NPs may have multiple choices for traceback
 - Method needed to decide which of several methods should be used by the percentage from the originator of request
- **Level of trace required**
 - RID systems need to reference the IODEF expectation class to determine how fast of a trace mechanism should be used
 - The start time and end time can be used to determine if a fast method of tracing or a slow and more detailed trace mechanism can be used



RID Policy

- **RID Policy**
 - New extension to ensure that policy information is transferred between participating RID peers
 - Policy information in RID to prevent policy related issues from relying on the transport mechanism for enforcement
 - Message type is specified here and should also be in the SOAP wrapper
- **RIDPolicy Information**
 - Extension to define the type of trace
 - IODEF Method and Impact class information should be considered for the type of traffic requested for trace and the success of an attack
 - Explicit statement for the type of trace requested in case it does not fit into the category of attack traffic and can be linked to a CVE or other identifier
 - Message Type
 - Message Destination and Node address
 - Identifies where the traffic may have policy issues
 - Client to NP
 - NP to client
 - Within a consortium
 - Between peers
 - Between consortiums
 - Across national boundaries
- **Purpose is to try to prevent abuse of the system**
 - Address security, confidentiality, and privacy concerns listed in the draft
 - New extension created to address issues raised at IETF-59



Communicating RID Messages

- **SOAP Messaging Wrapper and XML Security**
 - Method to transport messages
 - Policy negotiated in RID message and not wrapper
 - Provide integrity, authentication, authorization
 - XML digital signature, encryption, and public key infrastructure
 - Encryption of RID for privacy and security reasons should be via XML encryption and not through the security provided by a wrapper or higher level protocol
 - Added a section to outline all of the encryption and digital signature options that are also in various parts of the document for clarity
- **Public Key Infrastructure**
 - Provided by consortiums linking network providers for RID messaging
- **Message Types**
 - Trace Request
 - Trace Authorization
 - Source Found
 - Relay Request
- **RID Systems Must Track the Requests by**
 - Incident Number
 - Packet Contents
 - Completion Status



Security Considerations

- **Consortiums**
 - Agreements between entities involved in RID peering
 - Provide a secure key exchange repository/system (PKI)
 - Peering agreements and policies between consortiums and across national boundaries or jurisdictions
 - Policy enforced through RID messages by stating level and type of trace
- **System use guidelines**
 - Privacy considerations
 - Abuse policies
 - Use policies may vary across national network or consortium boundaries
 - Automated method to allow enforcement of use agreements
- **RID server security policies**
 - Network based access controls
 - Hardened systems
- **Communication security considerations for the exchange of RID messages and the underlying protocols**



Summary

- **Updates from the previous version**
 - **Extended the AdditionalData Class to accommodate the needs of RID messaging and RIDPolicy**
 - Extended information on system use and privacy considerations
 - RID message types
 - RID message destination and Node information
 - **PKI at the core of the security model, but provided by a consortium**
 - **Summary of XML Digital Signature and Encryption applications**
 - **Topology examples to address implementers questions**
 - **XML Schema for RID extensions**
- **Near Future Updates will include**
 - **More information on XML Security**
 - **Separate document for SOAP wrapper and transport**
 - **May include additional examples of other message types**
 - **Any suggested revisions or clarifications**
- **<http://www.ietf.org/internet-drafts/draft-ietf-inch-rid-00.txt>**
- **Plan to generalize document for IODEF purposes, any input would be appreciated!**